

**THIS OPINION WAS NOT WRITTEN FOR PUBLICATION**

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte PER NELVIG

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Appeal No. 96-4055  
Application No. 08/157,028<sup>1</sup>

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ON BRIEF

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Before KRASS, FLEMING and TORCZON, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on appeal from the final rejection of claims 16 through 32, all of the claims pending in the application.

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<sup>1</sup> Application for patent filed December 1, 1993. Appellant is claiming priority for International Application PCT/SE92/00369, filed January 6, 1992, under 35 U.S.C. § 371.

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The invention pertains to a method and apparatus for imaging an object with X-ray radiation.

Representative independent claim 16 is reproduced as follows:

16. An X-ray imaging apparatus comprising:

sensing means for generating electric signals in response to X-ray radiation;

means for generating X-ray radiation towards said sensing means;

interface means coupled to said sensing means for receiving said electric signals and generating a first interface signal when said sensing means detects X-ray radiation and generating a distinct second interface signal when said sensing means does not detect X-ray radiation; and

means coupled to said interface means for displaying an image.

The examiner relies on the following reference:

Franke	4,035,650	Jul. 12,
1977		

Claims 16 through 31 stand rejected under 35 U.S.C. 112, first and second paragraphs, for, respectively, relying on a specification which fails to support the invention as it is now claimed and being indefinite. Claims 24 through 28 stand

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further rejected under 35 U.S.C. 103 as unpatentable over Franke. Claim 32 stands rejected under 35 U.S.C. 102(b) as anticipated by Franke.

The final rejection of claims 16 through 23 and 29 through 31 based on prior art has been withdrawn by the examiner.

Reference is made to the briefs and answer for the respective positions of appellant and the examiner.

#### **OPINION**

Turning first to the rejection of claims 16 through 31 under 35 U.S.C. 112, first paragraph, as relying on a specification which fails to support the invention as is now claimed, we will not sustain this rejection.

The examiner contends, at pages 4-5 of the answer, that

[t]he disclosure teaches that there are two distinct sets of sensors, a first set that generates image signals and a second set that generates the two control signals. It is realized that the second set may be on the same side of the circuit board as the first set; but they, nonetheless, serve distinct functions. The instant claims, however, recite only one set of sensors that generates both the image

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signals and the two control signals, and this constitutes new matter.

Since the instant claims do not recite or require two sets of sensors, the examiner's rationale is not only unclear but we fail to find anything therein which would constitute an offense against the written description portion of 35 U.S.C. 112.

The examiner's objection becomes a little clearer in the response to appellant's arguments. At page 6 of the answer, the examiner explains that signals from elements 2-4 are used to measure X-ray intensity and

there is no disclosure that they also generate image signals. The disclosed interface has no image signal input, no means for processing image signals and, most importantly, no means for outputting image signals as recited in claim 16. There is no teaching ... that the interface is coupled to means for displaying an image ...

If the examiner is troubled by a perceived lack of disclosure of a means for displaying an image, there is clear support for such a recitation in original claims 6 and 8, for example, or, for example, in the last paragraph of page 1 of the specification. The sensing means for generating electric signals in response to X-ray radiation is disclosed as either

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detector diodes 2-4 on a CCD or the CCD itself. The interface means is shown in Figure 3 and adequately described at pages 6 et seq. of the specification. The means for displaying the image has clear support as noted supra. Accordingly, we find no problem with adequate support for that which is now claimed. Thus, we do not agree with the examiner that claims 16 through 23 contain some language which does not have support in the original disclosure.

With regard to claims 24 and 27, the examiner states that these claims "attribute a different meaning to the terms 'sensing member' than does the specification" [answer-page 6]. The examiner explains that the specification employs the term "image sensing member" but that when describing the elements for producing control signals, these elements are described as "sensing elements." Therefore, the examiner explains, there "is no teaching in the original disclosure for generating first and second control signals from the 'sensing member' output as recited in claims 24 and 27" [answer-page 7].

The skilled artisan would have had no problem in understanding that appellant did, indeed, have possession of the invention, as is now claimed, at the time of filing.

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Clearly, the term, "sensing member," appearing in the preamble of claim 24, was employed broadly to define the combination of the "sensing means" and the "interface means." The specification clearly describes this combination of elements and we find no new matter in describing the combination as a "sensing member." Even so, appellant attempted to amend the language "sensing member" to read "dental X-ray apparatus" but the examiner refused entry of this narrowing amendment.

Similarly, with claim 27, we find no new matter in the recitation of a "sensing member." We agree with appellant [bottom of page 4-principal brief] that the invention, as originally disclosed, allows for a CCD cell to serve as an image sensing member and a sensing element. The CCD cell causes the generation of first and second control signals as claimed [see, for example, the bottom of page 9 to the end of the first full paragraph on page 10 of the specification].

With regard to claim 29, contrary to the examiner's assertion that there is no disclosure that the same detector generates both X-ray detection signals and X-ray imaging signals, the disclosed CCD cell does generate signals during synchro-nization and also generates image signals.

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The examiner's rejection of claims 16 through 31 under the first paragraph of 35 U.S.C. 112 is reversed.

Turning now to the rejection of claims 16 through 31 under 35 U.S.C. 112, second paragraph, the examiner contends that the claims are "incomplete as they fail to define how the first and second signals are related to the rest of the claimed invention" [answer-page 5], noting that the recited signals are not image signals, as claimed.

Our review of the claims finds no indefiniteness as contended by the examiner. We agree with appellant's arguments set forth at pages 5-7 of the principal brief and adopt the same as our own in countering the examiner's rejection of claims 16 through 31 under 35 U.S.C. 112, second paragraph. All elements of the claims are clearly interconnected. To the extent that the examiner bases the indefiniteness rejection on the alleged deficiencies set forth in the rejection under 35 U.S.C. 112, first paragraph, we also disagree for the reasons, supra, regarding the reversal of that rejection.

Accordingly, the rejection of claims 16 through 31 under 35 U.S.C. 112, second paragraph, is reversed.

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We now turn to the rejection of claim 32 under 35 U.S.C. 102(b) based on Franke.

We will sustain this rejection.

The examiner presents, in our view, a prima facie case of anticipation, explaining, quite convincingly, at pages 8-9 of the answer, how Franke discloses the method set forth in instant claim 32. While the examiner recognizes that Franke's disclosure differs from that of the instant disclosed invention, the subject matter of instant claim 32 broadly reads on Franke.

Appellant argues [pages 8-9 of the principal brief] that Franke fails to disclose the two claimed control signals. However, as broadly claimed, we agree with the examiner's analysis of Franke and the application thereof to instant claim 32. That is, a first control signal is generated at capacitor 13 in Franke's Figure 2 when the sensing member 8 detects X-rays; and a second control signal is generated at the output of comparator 14 when the signal at capacitor 13 reaches the desired dose set by reference 20 which then causes a deactivation of X-ray generation through the opening of contacts 17 by relay 15.

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We note that, at page 10 of the principal brief and in the reply brief, at pages 5-6, appellant cites In re Donaldson Co., 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994) for the proposition that claims must be construed, in accordance with 35 U.S.C. 112, sixth paragraph, to cover the corresponding disclosed structure and equivalents thereof. Taking this together with the examiner's statement, at page 8 of the answer, that Franke's device and appellant's device "are structurally quite different," appellant contends that a rejection of claims 24 through 26 under 35 U.S.C. 103, based on Franke, is improper. As appellant apparently recognizes, however, since appellant does not argue claims 27, 28 and 32 on this ground with any specificity. Donaldson construed the language of the sixth paragraph of 35 U.S.C. 112 only with respect to so-called "means-plus-function" language in claims. Instant claims 27, 28 and 32 are directed to methods wherein various steps of the methods are recited but there is no "means-plus-function" language in these claims nor has appellant explained how there is even any "step-plus-function" language in the claims. See O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1583, 42 USPQ2d 1777, 1782 (Fed. Cir. 1997).

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For the reasons supra, we will sustain the rejection of claim 32 under 35 U.S.C. 102(b).

Finally, we turn to the rejection of claims 24 through 28 under 35 U.S.C. 103 based on Franke. We will sustain the rejection of claims 27 and 28 under 35 U.S.C. 103 but we will not sustain the rejection of claims 24 through 26 under 35 U.S.C. 103.

Regarding claims 27, the examiner applies Franke in a similar manner as applied to claim 32. However, the examiner notes that claim 27 requires the generation of a first control signal when the sensing member detects X-ray radiation and the generation of a second control signal *when* the sensing member does not detect X-ray radiation. As the examiner states, the output of comparator 14, identified by the examiner as the "second control signal," is obviously maintained for some time period after the "opening of relay 15 (which opening results in termination of the x ray radiation) in order that the relay does not relatch itself closed again" [answer-page 5].

Accordingly, the second control signal in Franke does exist "when" the sensing member 8 does not detect X-ray radiation.

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To the extent appellant is raising a Donaldson issue with regard to claim 27, at the top of page 11 of the principal brief, by arguing that Franke is "structurally and functionally distinct from the method of claim 27," we disagree. Talking about "structural" distinctions has no place in a method claim since no structure is recited and any structure which would perform the recited method steps would meet the claim language even though that structure may differ from the structure contemplated by appellant for performing the claimed method. With regard to any "functional" distinction, claim 27 is not in "step-plus-function" language. The claim merely recites ordered steps for performing the method of imaging an object.

With regard to claim 28, this claim requires the positioning of the sensing member within an oral cavity to allow for positioning a tooth between the sensing member and an extra-oral source of radiation. Appellant argues that this differs from Franke since Franke discloses the source of radiation to be within the oral cavity and the sensing member to be outside of the oral cavity. While we agree that this is a difference, we agree with the examiner that it is not a

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patentable distinction. The skilled artisan would clearly have realized, from prior experience at a dentist or from recognizing equally obvious expedients, that the positions of the source of radiation and the sensing member may be exchanged, one for the other, with the same results, so long as the body to be imaged [in this case, the tooth] is between them.

Thus, we will sustain the rejection of claims 27 and 28 under 35 U.S.C. 103.

We will not, however, sustain the rejection of claims 24 through 26 under 35 U.S.C. 103 because these claims are in "means-plus-function" form and appellant has invoked Donaldson, alleging that the "means-plus-function" language of these claims must be construed, in accordance with 35 U.S.C. 112, sixth paragraph, to cover that structure specifically disclosed and equivalents thereof. Giving this restrictive interpretation to the instant claim language, as urged by appellant, there is clearly no suggestion in Franke for the specific circuitry of instant Figure 3 or for the specific arrangement of the sensing member depicted in Figures 1 and 2a-2c. We will interpret the claimed "interface means" to

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include that shown in Figure 3, plus equivalents thereof, and we note that neither appellant nor the examiner has identified any structure that should be interpreted as an "equivalent" to the structure of Figure 3. Similarly, with regard to these claims, we interpret the "sensing means" to include only that which is specifically shown in Figures 1 and 2a-2c, and equivalents thereof, noting, again, that neither appellant nor the examiner has identified "equivalents."

#### CONCLUSION

We have reversed the rejection of claims 16 through 31 under both first and second paragraphs of 35 U.S.C. 112. We have also reversed the rejection of claims 24 through 26 under 35 U.S.C. 103, based on a restrictive interpretation of the claim language in accordance with 35 U.S.C. 112, sixth paragraph, and Donaldson, as urged by appellant. We have, however, sustained the rejection of claim 32 under 35 U.S.C. 102(b) and the rejection of claims 27 and 28 under 35 U.S.C. 103.

Accordingly, the examiner's decision is affirmed-in-part.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

**AFFIRMED-IN-PART**

ERROL A. KRASS	)	
Administrative Patent Judge)	)	
	)	
	)	
MICHAEL R. FLEMING	)	BOARD OF PATENT
Administrative Patent Judge)	)	APPEALS AND
	)	INTERFERENCES
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